

**METHODS FOR IN SITU GENERATION OF NUCLEIC ACID ARRAYS****ABSTRACT OF THE DISCLOSURE**

5           Methods of producing nucleic acid arrays using an *in situ* nucleic acid  
synthesis protocol are provided, where the *in situ* nucleic acid synthesis protocol  
includes a plurality of cycles, each of which includes: (I) a monomer attachment  
step; and (II) a functional group generation step, the latter of which may include:  
(a) oxidation and (b) deblocking substeps, and optionally a capping substep. A  
10       feature of the subject methods is that, following deblock of the surface, the  
deblocking fluid is displaced or purged from the surface using a fluid of different  
density, e.g., an oxidization fluid or wash fluid. Also provided are the arrays  
produced using the subject methods, as well as methods for use of the arrays  
and kits that include the same.